



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,560	12/04/2003	Noriko Yagi	1403-0259P	5471
2292	7590	03/21/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			POULOS, SANDRA K	
		ART UNIT	PAPER NUMBER	
		1714		

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/726,560	YAGI ET AL.	
	<b>Examiner</b> Sandra K. Poulos	<b>Art Unit</b> 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 04 December 2003.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/04/04;4/12/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Information Disclosure Statement***

1. The references JP 06-220254, JP 09-249716, and JP 07-090123 were submitted twice on the IDS; the extra have been crossed out.

The reference JP 3294903 entitled "NC DATA EXECUTING SYSTEM" has not been considered because it does not appear relevant to the present application which concerns tire treads.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Epoxidized or graft-copolymerized natural rubber composition for tire tread and pneumatic tire using the same".

3. The abstract of the disclosure is objected to because it exceeds one paragraph in length. Examiner suggests combining the two into a single paragraph. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Art Unit: 1714

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### ***Claim Objections***

4. Claim 4 is objected to because of the following informalities: The use of parentheses is improper.

Appropriate correction is required.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Two (2) obviousness-type double patenting rejections are set forth below.

*Double Patenting, I*

Art Unit: 1714

5. Claims 1-5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/842,515 (published as 2004/0266937). Although the conflicting claims are not identical, they are not patentably distinct from each other for the reasons set forth below.

The claims of Application 10/842,515 disclose a rubber composition for a tread comprising 5 to 150 parts by weight of silica having nitrogen-adsorbing specific surface area of 100 to 300 m<sup>2</sup>/g and/or carbon black having nitrogen-adsorbing specific surface area of 70 to 300 m<sup>2</sup>/g, based on 100 parts of a rubber component containing 5 to 100% by weight of a modified epoxidized natural rubber obtained by reacting epoxidized natural rubber with a compound selected from the group consisting of a Lewis acid, an amine compound, a thiol compound, an amide compound and an imidazole compound to conduct ring opening of an epoxy group. The rubber composition further contains a silane coupling agent is contained in an amount of at most 20% by weight based on silica and has same formula as the currently claimed. Another embodiment is wherein the protein content of the modified epoxidized natural rubber is at most 0.1% by weight converted to nitrogen content.

The present claims refer to epoxidized rubber while the claims of Application 10/842,515 refer to epoxidized rubber obtained by reacting rubber with a Lewis acid, etc. However, it would have been obvious to one of ordinary skill in the art that the epoxidized rubber that is obtained in the claims of Application 10/842,515 is a more

Art Unit: 1714

specific type of epoxidized rubber broadly disclosed in the present claims and thus falls within the scope of the present claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

*Double Patenting, II*

6. Claims 1, 2, and 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 11/060,772 (published as US 2005/0209390). Although the conflicting claims are not identical, they are not patentably distinct from each other for the reasons set forth below.

The claims of Application 11/060,772 disclose a rubber composition for a tire tread comprising 5 to 150 parts by weight of silica having nitrogen-adsorbing specific surface area of 100 to 300 m<sup>2</sup>/g based on 100 parts of a rubber component containing 5 to 100% by weight of an epoxidized natural rubber, and 1 to 20 parts by weight of a silane coupling agent and 0.1 to 20 parts by weight of an anionic surfactant based on 100 parts by weight of said silica.

The difference between the claims of Application 11/060,772 and the current claims is that the claims of Application 11/060,772 further contain an anionic surfactant. However, since the composition in the current claims is open to other components (through the use of the open-ended "comprising"), the composition of Application

Art Unit: 1714

11/060,772 falls within the scope of the currently claimed composition and therefore they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 it is unclear whether the limitation of an NSA of 100-300 applies to both the carbon black and silica or only the silica. Page 14 of the specification seems to indicate that only the silica has an NSA of 100-300, however, since page 13 also gives NSA for carbon black in the range of 100-300 (but not that exact range) it is still unclear to examiner. Examiner has assumed that the limitation is only for carbon black.

In claim 3 it is unclear whether the "natural rubber" is referring to the epoxidized natural rubber, graft-copolymerized natural rubber, or the possible mixture of both. In claims 3 it is also unclear if the natural rubber contains at most 0.10% of the protein or has a nitrogen content of at most 0.10%.

Claims 2 and 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sandstrom et al (US 5,489,628).

Sandstrom discloses a tire tread for a pneumatic tire that contains 1.0 to 15 parts epoxidized natural rubber (col 1, lines 41-67). Silica with a BET surface area measured using nitrogen gas is usually 50 to 300 m<sup>2</sup>/g (col 4 line 54 to col 5 line 39).

Representative coupling agents are bis-(3-triethoxysilylpropyl)tetrasulfide and bis-(3-trimethoxysilylpropyl)tetrasulfide (which meet the requirements set forth in Formula 1 of the current claims) (col 5 line 40 to col 6 line 10). The coupling agent ranges from about 1 to 5 parts by weight of rubber (col 6, lines 8-10), which is analogous to the claimed amount of 1 to 20% by weight of silica. Representative reinforcing agents include carbon black, which is typically added from about 5 to 100 parts by weight (col 6, lines 11-26). The examples show formulations that include the epoxidized natural rubber, carbon black, silica, and organosilane coupling agent.

Therefore, Sandstrom anticipates the cited claims.

9. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Terakawa et al (US 5,569,690).

Terakawa discloses a rubber composition for use as tread on a tire (abstract) that comprises an epoxidized natural rubber (col 2, line 53 to col 3, line 33) and 20 to 150 parts carbon black with NSA of 50 to 250 m<sup>2</sup>/g (col 4, lines 13-31). The examples show that the epoxidized natural rubber are contained in at least 5% (Table 3, 6, 9; col 8, lines 1-10).

Therefore, Terakawa anticipates the cited present claims.

10. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Blythe et al (US 5,115,021).

Blythe discloses a tread for pneumatic tires which comprises a natural rubber graft copolymerized with a polymer of an unsaturated compound and is present in the range of 5 to 60 parts (col 1, lines 28-57; col 2, lines 6-32; col 5, lines 28-40). MG 30 and MG 49 are graft copolymers obtained by graft polymerizing methyl methacrylate in natural rubber latex, and are contained in the examples in addition to N375 carbon black (col 2 line 55 to col 4 line 10).

Therefore, Blythe anticipates the cited claims.

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Art Unit: 1714

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandstrom et al (US 5,489,628) or Terakawa et al (US 5,569,690) or Blythe et al (US 5,115,021) in view of Tanaka et al (US 6,239,253).

The discussion with respect to Sandstrom, Terakawa, and Blythe in paragraphs 8-10 above is incorporated herein by reference.

The above references do not expressly disclose that the protein in the rubber has a nitrogen content of less than 0.10%.

Tanaka discloses a deproteinized natural rubber characterized in that the proteins have been eliminated to a level of a nitrogen content of less than 0.02% (col 4, lines 31-36). The deproteinized natural rubber has good electrical insulation properties, small energy loses, and is excellent in processing characteristics, mechanical

Art Unit: 1714

properties, and appearance (col 3, lines 59-65). The rubber can be used in various fields such as an automobile tire (col 11, lines 37-42). The rubber can be blended with other components commonly employed in conventional rubber compositions (col 11, lines 43-46). Examples of such components include crosslinking agents, vulcanization accelerators, metal oxides, fatty acids, and reinforcing agents such as carbon black (col 11, lines 47-58).

It would have been obvious to one of ordinary skill in the art to use deproteinized rubber in the formulations of Sandstrom, Terakawa, and Blythe because of the benefits disclosed by Tanaka as listed above, such as excellent processing characteristics. Tanaka discloses that the deproteinized rubber can be used in tire compositions and may be combined with carbon black and other components common in the production of tires and therefore it is reasonable to expect success in deproteinizing the rubber in the compositions of Sandstrom, Terakawa, and Blythe.

13. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-329702 (the abstract and machine translation from JPO for JP 06-329702 are used as the reference hereafter) in view of Sandstrom et al (US 5,489,628).

JP '702 discloses a deproteinized natural rubber composition for industrial goods such as tires (para 1-2). The natural rubber is graft polymerized with an organic compound having an unsaturated bond or is epoxidized natural rubber (para 10, 17-22). The protein is deproteinized to 0.10% or less (para 10).

Although JP '702 discloses that the deproteinized natural rubber can be used in such applications as tires, JP '702 give no formulations for treads but instead further discusses the rubber in latex glove applications.

The discussion with respect to Sandstrom in paragraph 8 above is incorporated herein by reference.

It would have been obvious to one of ordinary skill in the art to use the components commonly employed in conventional tire rubber compositions, such as those in Sandstrom, in order to successfully make tire tread from the rubber disclosed in JP '702, since JP '702 does not give specifics on tire making, but only mentions that it is possible and further discloses the same types of rubber used in Sandstrom (epoxidized natural rubbers).

14. Claims 1, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-329702 (the abstract and machine translation from JPO for JP 06-329702 are used as the reference hereafter) in view of Terakawa et al (US 5,569,690) or Blythe et al (US 5,115,021).

JP '702 discloses a deproteinized natural rubber composition for industrial goods such as tires (para 1-2). The natural rubber is graft polymerized with an organic compound having an unsaturated bond or is epoxidized natural rubber (para 10, 17-22). The protein is deproteinized to 0.10% or less (para 10).

Art Unit: 1714

Although JP '702 discloses that the deproteinized natural rubber can be used in such applications as tires, JP '702 give no formulations for treads but instead further discusses the rubber in latex glove applications.

The discussion with respect to Terakawa and Blythe in paragraphs 9-10 above is incorporated herein by reference.

It would have been obvious to one of ordinary skill in the art to use the components commonly employed in conventional tire rubber compositions, such as those in Terakawa and Blythe, in order to successfully make tire tread from the rubber disclosed in JP '702, since JP '702 does not give specifics on tire making, but only mentions that it is possible and further discloses the same types of rubber used in Terakawa and Blythe (epoxidized or graft copolymerized natural rubbers).

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2004/0226643 discloses epoxidized natural rubber with phyllosilicate filler.

US 2002/0040086 discloses a tire tread comprising natural rubber with silica (NSA 100-300 m<sup>2</sup>/g) and carbon black.

US 6,797,783 discloses a deproteinized natural rubber with less than 0.1% nitrogen content.

Art Unit: 1714

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

*Vasu Jagannathan*  
VASU JAGANNATHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700